

Weekly Report

10/08/2016-10/16/2016

Work

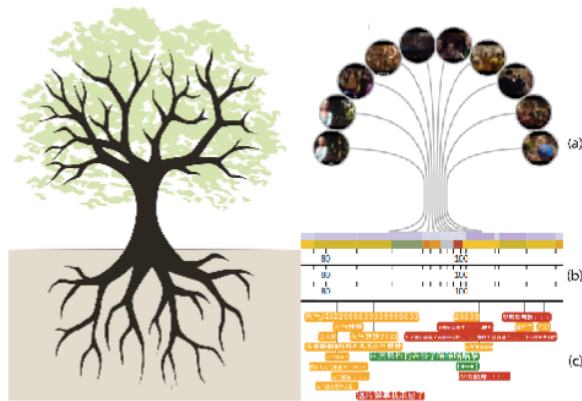
- I have submitted our AMTG paper in TVCG system.
- I have a discuss with the lawyer of our patents. There are some interactions which I need to explain in more detail.
- I make a report of the paper: A Visual Analytics Approach for Categorical Joint Distribution Reconstruction from Marginal Projections. Also, the article is published on vag blog.
- I try to store some videos on our Hadoop platform supporting our video visualization project. However, it's difficult to achieve it. I plan to store videos on my personal computer which is much easier to implement.

Plan for next week

- Add introduction and related work to Building Surveillance Analysis paper.
- Start our video visualization project.
- Read some deep learning papers about graph.

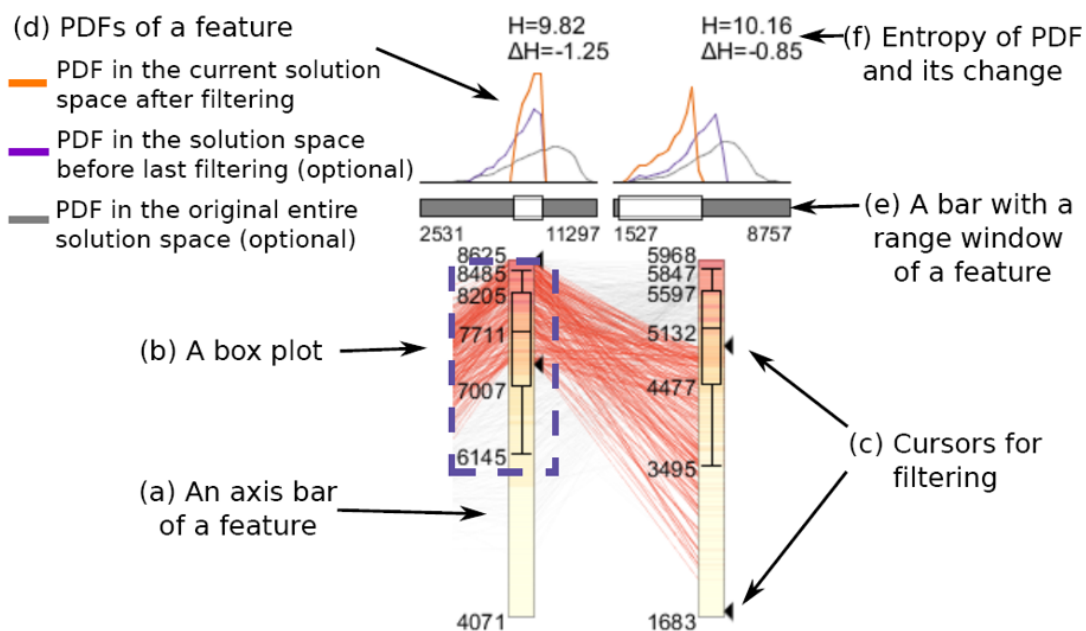
1. VideoForest: Interactive Visual Summarization of Video Streams Based on Danmu Data

本文讲述了一个结合弹幕数据可视化视频流的方法。视频中重要的帧都被聚类然后通过树的形式展现出来，关键帧是树叶，弹幕数据是根。



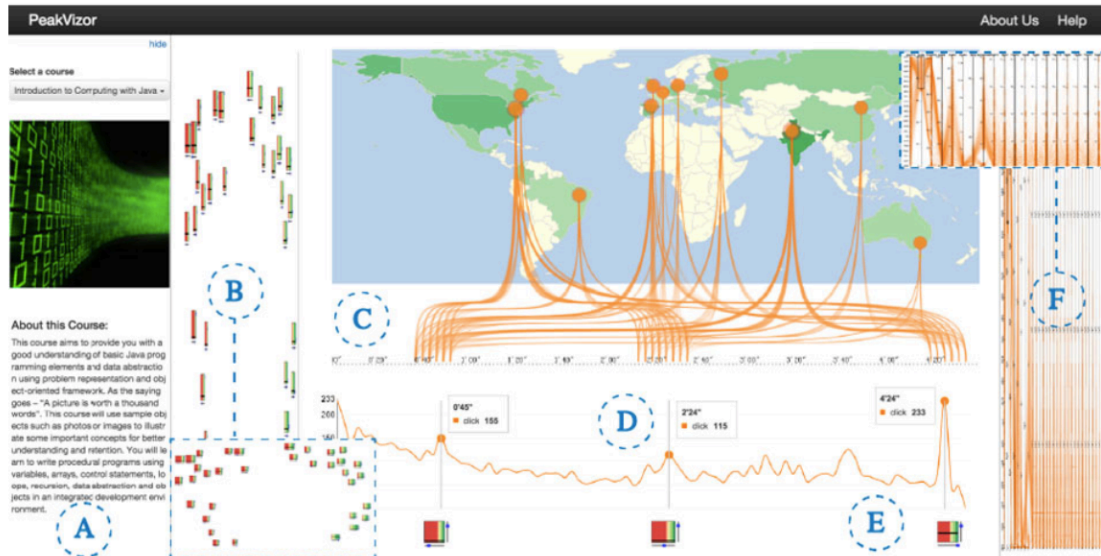
2. Visual Analytics Approach for Categorical Joint Distribution Reconstruction from Marginal Projections

通常情况下，我们获得的多变量数据并不是等多元元组的集合，而是一些属性的子集的投影。例如，我们可能会找到有 5 个属性的数据，但我们得到的并不是一个完整的表格，这些数据以两两维度存储在六个表中。所以我们想要从边缘分布重构联合分布。目前已知的方法都通过迭代过程来估计联合分布。当前的这些方法存在以下两个问题：一、没有足够的边际分布和专家知识，结果的误差较大。二、如果属性不是数值型的而是类别型的，求解过程中的正则化是不适用的。作者提出了一个结合多种数据和领域专家只是的可视分析方法，以迭代的方法来缩小合理解的数量。



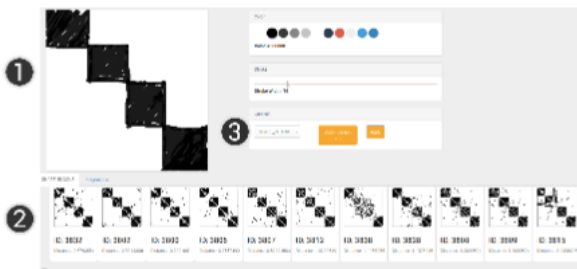
3. PeakVizor: Visual Analytics of Peaks in Video Clickstreams from Massive Open Online Courses

这篇文章讲述了一种可视化 MOOCs 的点击数据的可视化方法，特别是对于点击流中的峰值，文章采用了折线图展示点击流数量，总览图展示峰值的用户行为数据，以及平行坐标轴展示不同属性间的关系。



4. Magnostics: Image-based Search of Interesting Matrix Views for Guided Network Exploration

文章对于矩阵视图使用了 30 种特征描述子来提取矩阵的特征。从而我们可以通过手绘或者指定某个矩阵，然后在大规模的动态网络中进行检索。



5. SemanticTraj: A New Approach to Interacting with Massive Taxi Trajectories

随着传感器技术的发展，越来越多的轨迹数据可以被采集，例如出租车的轨迹数据、滴滴和 Uber 记录的轨迹数据，数据能够帮助专家进行城市交通规划。然而现有的轨迹可视分析系统都需要大量的交互例来支持分析，需要，分析人员需要学习系统并并且使用大量繁琐、耗时的交互来完成分析。针对这些问题，这篇文章提出了 SemanticTraj 的可视分析系统。通过把轨迹数据转化为文本描述数据，通过文本搜索的交互方式对轨迹数据进行查询分析。

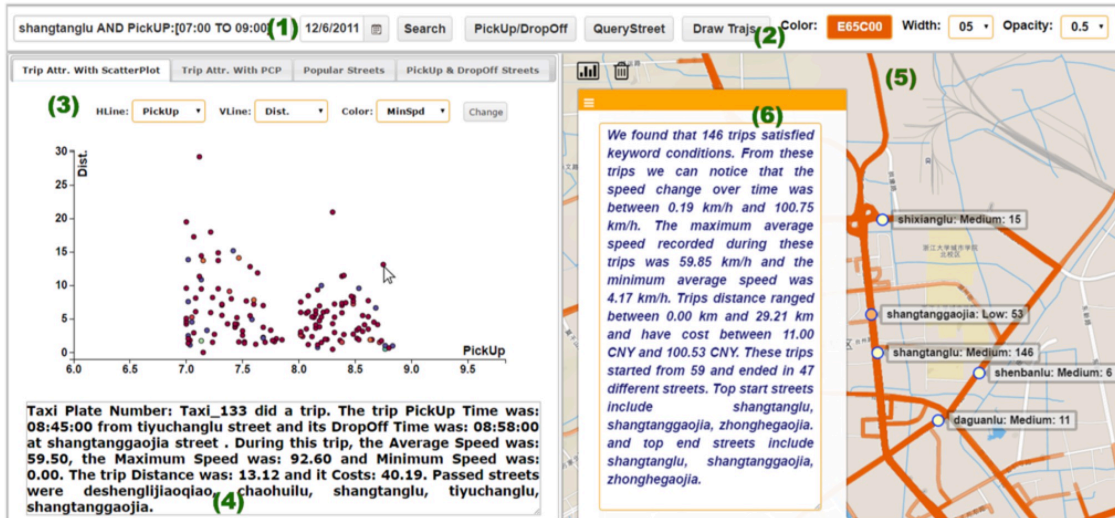


Fig. 3. Using SemanticTraj to visualize taxi trips which passed Shangtanglu street of Hangzhou, China in the morning (7am-9am) of Dec 6, 2011. See details in Sec. 7. (1) Query input box accepting semantic query conditions as Shangtanglu AND PickUp:[7:00-9:00]; (2) Visualization control panel for adjusting the appearance; (3) Scatterplot view for users to study search results. Other visual tools can be selected in this view; (4) Meta-summary of a selected trip which automatically summarizes the trip fact; (5) Map view showing trip trajectories. Text labels are displayed on critical streets about its role in these trips; (6) A meta-summary of the group of all 146 result trips. Users can interact with the name tags to filter trips.